

# Pain and epidemiologic evaluation of patients seen by the first aid unit of a teaching hospital\*

*Avaliação de dor e do perfil epidemiológico, de pacientes atendidos no pronto-socorro de um hospital universitário*

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## SUMMARY

**BACKGROUND AND OBJECTIVES:** Pain is a major reason for seeking emergency care. However it is not always accurately evaluated, documented and managed. This study aimed at describing the epidemiologic profile, the characterization of pain, the analgesic treatment instituted and the satisfaction of patients seen by the first aid unit (FA) of a Teaching Hospital (TH).

**METHOD:** This is a prospective transversal study carried out with 309 patients seen by the FA/TH of the Federal University, Triângulo Mineiro (UFTM). Information was collected as from a tool with identification, socio-demographic data, pain evaluation by the pain numerical scale (PNS), analgesics prescription and satisfaction with analgesia.

**RESULTS:** There has been predominance of Caucasian males with basic education. Mean age was 46.7 years. Unemployed were 10% and retired 15%. Pain prevalence was 45.6%. Major causes: traumas, abdominal pain,

headache, bites by venomous animals and vasculopathies. Approximately 5% of patients were seen with less than 1 hour of pain and 40% with more than 72 hours. Most common sites were abdomen (25.2%) and lower limbs (MMII) (23.4%). Pain was severe in two thirds of patients, with mean intensity at admission of  $7.8 \pm 2.1$  by PNS. Improvement time after analgesia: less than 30 minutes for 25% of patients. There has been no analgesic prescription for 17.7% of cases. Most prescribed analgesic was dipirone, with or without association. Only 30% had pain resolution. In spite of these data, half the patients reported being happy with analgesia.

**CONCLUSION:** Pain was highly prevalent during first aid visits, was poorly valued and undertreated, with low resolution rate and inadequate analgesics prescription.

**Keywords:** Analgesia, First aid unit, Pain prevalence, Pain management.

## RESUMO

**JUSTIFICATIVA E OBJETIVOS:** Dor é um dos principais motivos de procura por pronto-atendimento. No entanto, nem sempre é bem avaliada, documentada e tratada. O objetivo deste estudo foi descrever o perfil epidemiológico, caracterização da dor, tratamento analgésico instituído e satisfação de pacientes atendidos no pronto-socorro (PS) de um Hospital Universitário (HC). **MÉTODO:** Estudo prospectivo, transversal, realizado com 309 pacientes atendidos no PS/HC da Universidade Federal do Triângulo Mineiro (UFTM). As informações foram coletadas a partir de instrumento contendo identificação, dados sócio-demográficos, avaliação de dor pela escala numérica de dor (END), prescrição de analgésicos, satisfação com a analgesia.

**RESULTADOS:** Houve predomínio do sexo masculino,

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cor branca e com ensino fundamental. Média de idade 46,7 anos. Desempregados: 10% e 15% aposentados. Prevalência de dor 45,6%. Principais causas: traumatismos, dor abdominal, cefaleia, picada por animais peçonhentos, vasculopatias. Cerca de 5% dos pacientes foram atendidos com menos de 1h de dor e 40% com mais de 72h. A localização mais comum foi abdômen (25,2%) e membros inferiores (MMII) (23,4%). A dor foi intensa em dois terços dos pacientes, com intensidade média na admissão de  $7,8 \pm 2,1$  pela END. Tempo de melhora após analgesia: menor que 30 minutos para 25% dos pacientes. Em 17,7% dos casos de dor, não houve prescrição analgésica. O analgésico mais prescrito foi a dipirona, com ou sem associação. Apenas 30% tiveram resolução da dor. Apesar destes dados, metade dos pacientes, disseram-se satisfeitos com a analgesia.

**CONCLUSÃO:** A dor foi altamente prevalente no pronto-atendimento, pouco valorizada, mal avaliada e subtratada, com baixa resolutividade e prescrição inadequada de analgésicos.

**Descritores:** Analgesia, Dor, Prevalência de dor, Pronto-socorro, Tratamento da dor.

## INTRODUCTION

Pain is a subjective and multidimensional phenomenon influenced by individual, cultural, social, psychological, environmental and physical factors<sup>1</sup>. It is one of the major reasons for seeking health care by general population<sup>2</sup> and is very frequent in hospitals, especially in emergency sectors as consequence of traumas, inflammatory / infectious processes, burns and ischemia, among others<sup>3</sup>.

In general, patients look for health care when the pain is acute, however many chronic pain patients also look for emergency sectors (ES) when there is exacerbation, or even due to the discomfort caused by chronic pain<sup>4</sup>. Acute pain is an alarm signal of the presence of noxious stimulations and / or tissue injury and is critical for people's physical integrity<sup>3</sup>.

Pain control is a patient's right and should be seen as priority by health care professionals<sup>2</sup>. Evidences show that untreated or inadequately treated pain may adversely affect the recovery process and lead to chronicity, which substantially affects quality of life and increase involved social and financial costs<sup>5,6</sup>.

Several studies have shown that pain, be it acute or chronic, in all levels of health care, is under-diagnosed, poorly evaluated and undertreated, being sometimes neglected. In spite of the relevance of such symptom, there are not many studies in Brazil about its prevalence in

emergency sectors, which makes difficult the sensitization of health professionals for the planning of actions, programs and allocation of material and human resources aiming at its intra-hospital control.

This study aimed at describing the epidemiological profile, the characterization of pain, the instituted analgesic treatment and satisfaction with analgesia of patients seen in the ES of a teaching hospital.

## METHOD

This is a transversal, observational study carried out in a teaching hospital with tertiary and highly complex assistance. HE-UFTM assists the local population (estimated in 298 thousand people) and other 27 neighbor cities, being reference for approximately 700 thousand people making up the macro-region of the southern triangle of the state of Minas Gerais. Data were collected throughout April 2011. Potential participants were all patients seen by the adult ES of HC-UFTM from 7 a.m. to 7 p.m., excluding those under mechanical ventilation, sedated, who could not adequately answer the questions or who refused to participate in the study, resulting in a total of 309 patients.

Two research tools were developed, one for each group (With and Without Pain). The Without Pain group tool had information about origin, age, gender, color of the skin and education. The With Pain group tool, in addition to the items above, had information about pain assessment, such as onset time, reason, type of pain, location, intensity at admission and discharge, analgesic drugs consumed, improvement time after analgesia, associated infection and satisfaction with analgesia.

All selected patients were evaluated by a team made up of a UFTM resident physician in neurology and / or member of the League for the Study and Support to Painful Patients (LEAD). Patients were interviewed at bedside and data were collected from their medical charts. Patients were re-evaluated at discharge. There has been no intervention of the researchers in the management of pain.

Huskisson's pain numerical scale<sup>9</sup> (PNS) and body diagram (drawing of the human body where patient would indicate pain site) were used to evaluate pain intensity and location. PNS varies from zero (no pain) to 10 (severe / worst possible pain) and, for this study, answers were classified in four levels, according to World Health Organization (WHO) Analgesic Pain Scale<sup>10</sup>: no pain (0), mild pain (1 to 3), moderate pain (4 to 7) and intense / severe pain (8 to 10).

Data were analyzed by the SPSS-PC for Windows program. A descriptive analysis was used to characterize the sample and the pain referred by patients in terms of per-

centages and means. Student's t, Fisher Exact and Chi-square tests were used for statistical analysis.

This study is an arm of the research Project "Prevalence of pain in patients admitted to the wards of the Teaching Hospital of the Federal University of Triângulo Mineiro (UFTM)", approved by the Research Ethics Committee under protocol 780/2006-UFTM.

## RESULTS

Participated in this study 309 eligible patients. There has been predominance of males, Caucasians and with basic education, in both with and without pain groups. Approximately 10% were illiterate and all of them had

more than 45 years of age. Aged has varied from 14 to 90 years, with mean of 46.7 years. More than 50% of patients were employed and 15% were retired. Pain prevalence was 45.6%. These data are shown in table 1.

The following information refers to 141 patients with pain complaint. For better visualization of pain-related data, we decided to divide them according to pain duration until assistance in the ES-HC/UFTM. Most patients were seen 72 hours after pain onset. Major reason for pain was trauma. Most frequent word used to characterize the type of pain was pulsatile. Most frequent pain location was abdomen and mean pain intensity at admission was 7.8 according to PNS. Only 29% of patients left without pain, according to data shown in table 2.

Table 1 – Patients socio-demographic characteristics.

Categories	With Pain		Without Pain		Total		p value
	N	%	N	%	N	%	
Gender							
Male	73	(51.8)	99	(58.9)	172	(55.5)	1.00
Female	68	(48.2)	69	(41.1)	137	(44.5)	
Mean age	45.5		47.9		46.7		0.24
Education							0.23
Illiterate	13	(4.2)	19	(6.1)	32	(10.3)	
Basic	99	(32.1)	114	(36.9)	213	(69.0)	
High school	20	(6.5)	30	(9.7)	50	(16.2)	
College	9	(2.9)	5	(1.6)	14	(4.5)	
Job							
Formal employment	91	(29.5)	81	(26.2)	172	(55.7)	
Does not work	29	(9.4)	22	(7.1)	51	(16.5)	
Unemployed	8	(2.6)	17	(5.5)	25	(8.1)	
Retired	9	(2.9)	33	(10.7)	42	(13.6)	
Ignored	4	(1.3)	15	(4.9)	19	(6.2)	
Skin color							0.19
Caucasian	79	(25.6)	94	(30.4)	173	(56)	
Mulato	40	(13)	49	(16)	89	(29)	
Afro-Brazilian	22	(7.2)	24	(7.8)	46	(15)	
Total	141	45.6	168	54.4	309	(100)	

Table 2 – Number of treatments, mean age of patients. painful syndrome clinical characteristics according to pain onset time in hours. in absolute and percentage terms.

Time Characteristics	≤ 1 hour		2-10 hours		11-24 hours		24-72 hours		> 72 hours		Total	
	N%	%	N	%	N	%	N	%	N	%	N	%
Nº of treatments	08 (5.7)		29 (20.5)		19 (13.5)		28 (19.9)		57 (40.4)		141 (100)	
Mean age	41.5± 19.4		43.1± 16.3		43.1 ± 16.6		45.1 ± 15.2		48.3 ± 17.2		46.7	
Pain description												
Pulsatile	01 (0.7)		11 (7.8)		03 (2.1)		05 (3.5)		07 (5.0)		27 (19.1)	
Colic	-		02 (1.4)		05 (3.5)		04 (2.8)		07 (5.0)		18 (12.8)	
Continuous	-		03 (2.1)		-		02 (1.4)		06 (4.3)		11(7.8)	
Twinge	-		03 (2.1)		01 (0.7)		03 (2.1)		04 (2.8)		11 (7.8)	
Others	07 (5.0)		10 (7.1)		10 (7.1)		14 (9.9)		33 (23.4)		74 (52.5)	
Reason for pain												
Traumas	03 (2.1)		17 (12.1)		05 (3.5)		10 (7.1)		05 (3.5)		40 (28.3)	
Abdominal pain	-		-		04 (2.8)		09 (6.4)		21 (14.9)		34 (24.1)	
Headache	-		02 (1.4)		01 (0.7)		04 (2.8)		07 (5.0)		14 (9.9)	
Venomous sting	04 (2.8)		04 (2.8)		-		-		01 (0.7)		09 (6.3)	
Vasculopathy	-		-		-		-		07 (5.0)		07 (3.5)	
Others	01 (0.7)		06 (4.3)		09(6.4)		05 (3.5)		16 (11.5)		37 (26.4)	
Location												
Abdomen	-		01 (0.7)		06 (4.3)		10 (7.1)		19 (13.5)		36 (25.6)	
Lower limb	04 (2.8)		12 (8.5)		04 (2.8)		05 (3.5)		08 (5.7)		33 (23.3)	
Upper limb	02 (1.4)		07 (5.0)		02 (1.4)		01 (0.7)		03 (2.1)		15 (10.6)	
Head	-		02 (1.4)		01 (0.7)		04 (2.8)		07 (5.0)		14 (9.9)	
Chest	-		03 (2.1)		03 (2.1)		03 (2.1)		04 (2.8)		13 (9.1)	
Others	02 (1.4)		04 (2.8)		03 (2.1)		05 (3.5)		16 (11.5)		30 (21.2)	
Mean pain intensity	7.5 ± 2.7		7.9 ±1.7		8.47 ± 2.2		7.7 ± 2.1		7.5 ± 2.4		7.8 ± 2.2	
Pain at discharge												
No pain	04 (2.8)		08 ( 5.7)		04 (2.8)		06 (4.3)		19 (13.5)		41 (29.1)	
Mild	03 (2.1)		08 ( 5.7)		07 (5.0)		09 (6.4)		18 (12.8)		45 (32.0)	
Moderate	01 (0.7)		05 ( 3.5)		03 (2.1)		05 (3.5)		10 (7.1)		24 (16.9)	
Severe	- -		01 ( 0.7)		02 (1.4)		01 (0.7)		01 (0.7)		05 (3.50)	
Ignored	-		07 (5.0)		03 ( 2.1)		07 (5.0)		09 (6.4)		26 (18.5)	

Table 3 – Painful syndrome treatment and satisfaction with analgesia. according to pain onset time in hours and in absolute and percentage terms.

Pain duration	< 1 hour		2-10 hours		11-24 hours		24-72 hours		> 72 hours		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Analgesia (n° of prescriptions)*												
Common analg.	7	(3.7)	10	(5.2)	14	(7.3)	17	(8.9)	31	(16.2)	79	(41.3)
NSAIDs	3	(1.6)	7	(3.7)	7	(3.7)	10	(5.2)	12	(6.3)	39	(20.5)
Weak opioids	6	(3.1)	10	(5.2)	10	(5.2)	16	(8.4)	19	(10.0)	61	(31.9)
Strong opioids	-		-		1	(0.5)	1	(0.5)	3	(1.6)	5	(2.6)
Blockades	2	(1.0)	2	(1.0)	1	(0.5)	-		-		5	(2.6)
Others	-		-		-		-		2	(1.0)	2	(1.0)
Satisfaction with analgesia												
Yes	6	(4.3)	13	(9.1)	9	(6.4)	16	(11.5)	29	(20.1)	73	(51.5)
No	2	(1.4)	9	(6.4)	6	(4.3)	9	(6.4)	17	(12.1)	43	(30.6)
Ignored	-		7	(5.0)	4	(2.8)	3	(2.1)	11	(7.8)	25	(17.8)
W/o analgesic prescription	-		10	(7.1)	2	(1.4)	4	(2.8)	9	(6.4)	25	(17.7)

\*There has been association of analgesics. NSAIDs = non steroid anti-inflammatory drugs.

Information related to analgesic treatment and satisfaction with analgesia is shown in table 3.

It is observed that 17% of patients, even with pain complaints, had no analgesic prescription. Only 2.5% have received potent analgesics and just half the patients were happy with the analgesia.

## DISCUSSION

Pain is one of the major reasons for looking for emergency services<sup>4,7,8</sup>, and this information was confirmed by our study where the prevalence was 45%. Although being a frequent symptom in this sector, health care providers are unprepared to manage it and pain treatment remains inadequate<sup>4,7,11</sup>. This information is important because oligoanalgesia is widely mentioned by several studies<sup>2,4,6,7,11,12</sup> and measures to remove pain management obstacles should be encouraged.

In our study there has been predominance of males, differently from other studies<sup>4,12</sup>. Mean age was 46.7 years. Most patients had only basic education, 10% were illiterate and 8.0% were unemployed, data similar to the Brazilian population. Most common expression to describe pain was pulsatile, followed by colic and continuous. These descriptions are similar to other study on pain in emergency<sup>4</sup>, where the same expressions were used to charac-

terize acute pain. Pain is an alarm signal and was determinant, in some cases, for diagnoses such as myocardial infarction, appendicitis and cholecystitis, among others. Trauma was the major reason for pain, followed by abdominal pain and headache. Most frequent site was abdominal / pelvic region, related both to trauma and infectious / inflammatory and obstructive processes such as visceral stenosis, calcuosis, etc., followed by lower and upper limbs.

ES assistance according to pain duration, duration less than or equal to one hour, is detailed below:

Acute pain was frequent and in those seen with less than one hour of pain mean age was the lowest, intensity was moderate and venomous animal accidents and traumas have prevailed. Treatment included combinations of common analgesics, weak opioids and anesthetic blocks. Most patients left without pain and more than half reported they were happy with the analgesia. These data reinforce the idea that professionals are well prepared to treat venomous animal accidents with pain, since there are guidelines defined by the Department of Health which are followed by the institution.

Between two and 24 hours there has been predominance of traumas and prescription included common analgesics and weak opioids. Mean pain intensity was the highest (8.12 by PNS), but even so, 20% of patients did



not receive analgesics. At discharge, approximately half the patients had mild / moderate pain and some of them were worse than at admission. Approximately 40% were unhappy with the analgesia. In a study on pain intensity and analgesic adequacy, carried out in an emergency sector, authors have evaluated the use of analgesics in injuries by transport accidents and have observed that, in spite of severe injuries, in 37% of cases common analgesics were the only drugs prescribed<sup>6</sup>. In this context, it is clear that health care providers are not fully qualified to handle traumatic pain<sup>7,8,11</sup>.

After 24 to 72 hours of pain, traumas and abdominal dysfunctions have prevailed. Most frequent pain description was pulsatile, followed by colic. Pain was predominantly moderate and major site was the abdomen. Most patients received association of common analgesics and weak opioids and were happy at discharge in spite of the presence of mild to moderate pain.

With regard to pain treatment after more than 72 hours, most patients had chronic diseases, such as vasculopathy, migraine and lower limb ulcers. Mean pain intensity was moderate. Mean age was the highest and abdominal pain prevailed. Most frequent prescription was the association of common analgesics and weak opioids and 15% did not receive any analgesic drug. Only one third of patients left without pain, however half of them were happy with the analgesia. Maybe this is a consequence of more conformism on the part of elderly patients with chronic pain and already used to live with such symptom.

The natural evolution of acute pain is resolution as tissues are restored. However, when this pain is inadequately treated, there is prolonged activation of several neural pathways which may induce sensitization of pain-related neurons in the spinal cord and upper levels and may lead to chronification<sup>4</sup>. This happens with chronic pain which follows some diseases such as vasculopathy, painful neuropathy and lower limb ulcers and which were present in our study group.

Analgesic prescription for the different groups in this study clearly shows oligoanalgesia also described by other authors<sup>6,8,11,13</sup>. There have been a large number of patients with moderate or severe pain with prescription of common analgesics, some using the association of common analgesics and weak opioids, but in no case there has been association of common analgesics and strong opioids and/or the prescription of adjuvant drugs. Strong opioids prescription represented just 2.6% of total analgesics used. In addition to oligoanalgesia, it has been observed that almost 20% of patients with pain had no analgesic prescription.

Under-prescription of potent analgesics, lack of valorization and adequate evaluation of pain may explain the

huge contingent of patients receiving hospital discharge still with pain, as observed in this study.

Health professionals have given many reasons for pain under-treatment in the ES, including the risk of opioid adverse effects, the possibility of masking symptoms or diagnostic signs, lack of confidence and credibility on patient's information about pain characteristics<sup>4</sup>.

On the other hand, what is seen in the studies is the unawareness of such professionals about the rational use of analgesics, side effects, action mechanism, drug interactions, half life as well as evaluation and measurements which may be pointed as major causes for oligoanalgesia<sup>8,11,13</sup>.

The high prevalence of pain in emergency sectors and the lack of monitoring reinforce the importance of implementing guidelines to manage pain in the emergency sector.

## CONCLUSION

Pain is a common and clinically relevant experience in the ES, but in spite of advances in the understanding of pain mechanisms and management, pain has not been adequately valued, evaluated and managed.

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